

## REMARKS

Applicant has amended claim 3 to correct a mistake with the claim, as filed. Originally, claim 3 required that the cooling plate include contact pads to be soldered to a "slot-like" opening in a system circuit board. Clearly, as is illustrated in Figure 2, the strip portion 9 of the circuit board 5 is soldered to the system circuit board 13. Upon discovery of this mistake, Applicant amended claim 3 accordingly.

The Examiner has rejected claim 1 under 35 U.S.C. § 103 (a) as being unpatentable over Oshima (U.S. Patent 5,747,875) in view of Linden et al. (U.S. Patent 6,201,701). The Examiner asserts that Oshima discloses a device comprising a power part of electrical components arranged on a power substrate (elements 221, 222, T1-T4, Figs. 1, 7-11); a logic part arranged on a circuit board having a recess in which the power part is located and electrically connected to the logic part by wire bonding techniques (elements 231, IC1-IC4, W, Figs. 1, 7-11); and the power substrate being mounted on a cooling plate (see element 270, Fig. 9, 225, Fig. 1). The Examiner states that Oshima does not disclose a portion of the circuit board surrounding the power substrate being mounted on a cooling plate.

However, the Examiner believes Linden et al. discloses a power module with a portion of the circuit board surrounding the power substrate being mounted on a cooling plate. Consequently, the Examiner maintains "it would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the circuit board surrounding the power substrate as taught by Linden et al. in the module assembly as taught by Oshima et al. for the purpose of efficiently transferring heat from the power elements to the cooling plate, thereby allowing the power module to integrate power and control elements without overheating (see Linden, column 8, lines 56-59)."

Applicant has amended claim 1 to further distinguish the claim from that disclosed in the prior art. Currently amended claim 1 further defines the present invention by now reciting first and second portions of the circuit board. The first portion of the circuit board is defined as the portion of the circuit board surrounding the power substrate, while the second portion of the circuit board is defined as the portion connected to at least one component forming the logic part. Claim 1 further requires that the second portion of the circuit board not be mounted to the cooling plate. This feature is illustrated in Figure 2 of the present application, in which numeral 4 indicates components of the logic part

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arranged on the circuit board. As depicted, the portion of the circuit board supporting the components of the logic part is not mounted to the cooling plate. Applicant submits to the Examiner that this feature is not disclosed in the prior art.

With reference first to Oshima, Figure 9 depicts the heat conducting plate 270 as extending across the entire lower portion of the power module. Both the power substrate and the logic part are mounted upon the heat conducting plate, as illustrated in Figure 9, thereby requiring a greater cooling plate than that necessary in the invention as disclosed in the present application. Therefore, applicant submits this invention does not disclose the added feature of claim 1 requiring a portion of the circuit board supporting the logic parts not be mounted to the cooling plate.

Similarly, Linden et al. also discloses a power module in which both the power substrate and the logic part are arranged on a circuit board in which the entire circuit board is attached to the cooling plate. Column 7, lines 18-21 read: "Having defined "power" and "control" (logic) elements, a feature of the present invention is that both power and control elements can be installed into a single integrated substrate 20." Further, at lines 30-33 of column 7, the patent states: "First, with reference to Figs. 1 and 3, the bottom layer of substrate 20 is comprised of a thick aluminum base 22, which serves as a heatsink." A review of the Figures illustrating the module of Linden et al. shows this to be true, with the cooling plate, or heatsink, being attached to the portions of the circuit board supporting both the logic, or control, components and the power substrate. Accordingly, applicant submits Linden et al. does not disclose the newly added feature of claim 1.

Applicant would also like to bring to the attention of the Examiner that neither Nishihara et al. nor Kornrumpf disclose this limitation. Although Nishihara et al. discloses a module including a flexible circuit board including a portion extending beyond a cooling plate, any portion of the circuit board joined to any components comprising the logic part is mounted to the cooling plate. Figure 3A depicts the metal substrate 12 as being mounted to the portions of the flexible circuit board 11 supporting both the power substrate and the logic parts. This is in direct contrast with that required by currently amended claim 1.

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Equally, Kornrumpf does not even distinguish the logic parts and the power substrate. Consequently, this reference can not teach that the portion of the circuit board connected to the logic part is not attached to the cooling plate. Accordingly, neither Kornrumpf nor Nichihara et al. teach the limitations of claim 1, as currently amended.

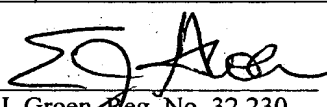
Applicant believes claim 1, as currently amended, is now in condition for allowance and respectfully requests passage thereof. Furthermore, as all remaining claims ultimately depend from allowable claim 1, the applicant submits that the remaining claims are also in condition for allowance. Therefore, passage to issuance is respectfully solicited. If necessary to effect a timely response, please consider this paper a petition for extension of time sufficient to make this response timely and charge any fees due therefore, and charge any other fees due and credit any overpayment of fees to Baker & Daniels Deposit Account No. 02-0387 (72262.90020).

Respectfully submitted,



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